



## Research Article

# An Assessment of Perceived Emotional Intelligence and Eating Attitudes among College Students

Michele L. Pettit, Sue C. Jacobs, Kyle S. Page, and Claudia V. Porras

## ABSTRACT

**Background:** Disordered eating patterns continue to surface on college campuses. Studies are needed to examine the potential influence of emotional intelligence on disordered eating behavior. **Purpose:** The purpose of this study was to assess relationships between perceived emotional intelligence factors and eating disorder symptoms among male and female college students. **Methods:** A convenience sample ( $N = 418$ ) of college students completed online surveys consisting of items from the Trait Meta-Mood Scale (TMMS) and the Eating Attitudes Test (EAT-26). **Results:** Inverse relationships existed between: (1) clarity (i.e., TMMS factor involving the capacity to comprehend one's mood) and bulimia/food preoccupation ( $r = -0.177, P = 0.001$ ) and (2) repair (i.e., TMMS factor involving the capacity to fix unfavorable moods or sustain favorable ones) and bulimia/food preoccupation ( $r = -0.151, P = 0.004$ ). Females scored higher than males on dieting ( $M = 28.80$  and  $M = 19.38$ , respectively), bulimia/food preoccupation ( $M = 8.27$  and  $M = 4.56$ , respectively), oral control ( $M = 9.92$  and  $M = 8.65$ , respectively), and total eating attitudes ( $M = 46.99$  and  $M = 32.51$ , respectively). Gender was the only significant predictor of dieting, and was the most significant predictor of bulimia/food preoccupation, oral control (i.e., a factor potentially indicative of healthy eating behaviors), and total eating attitudes. **Discussion:** Results confirm gender differences regarding eating disorder symptoms and indicate that low levels of perceived emotional intelligence (i.e., clarity and repair) are associated with greater risks for bulimia/food preoccupation. **Translation to Health Education Practice:** Future research is needed to investigate factors that protect males from developing eating disorder symptoms. Health educators need to recognize the potential efficacy of incorporating emotional intelligence factors into eating disorder prevention programs and teach individuals skills for healthy coping.

Pettit ML, Jacobs SC, Page KS, Porras CV. An assessment of perceived emotional intelligence and eating attitudes among college students. Am J Health Educ. 2010;41(1):46-52. This paper was submitted to the Journal on March 12, 2009, revised and accepted for publication on July 3, 2009.

## BACKGROUND

Obsessions with physical appearance have pervaded the United States' cultural landscape in recent years. Distorted body image/body dissatisfaction and disordered eating represent ubiquitous phenomena among Americans. These phenomena are perpetuated by complex factors including genetics,<sup>1</sup> social environments<sup>2</sup> and the media,<sup>3</sup> and are accompanied by a host of adverse health effects.

The interplay of distorted body image/body dissatisfaction and disordered eating is pronounced among college females. For example, researchers have documented a

pervasive "drive for thinness" among college females.<sup>4</sup> The purported "drive for thinness" gives rise to negative affect<sup>2</sup> which, in turn, precipitates distorted body images and contributes to eating disorder symptoms among college females.<sup>5</sup>

The prevalence, determinants and accompanying health effects of eating disorders are not confined to females. According to results from the National Comorbidity Replication Survey of U.S. adults, the lifetime prevalence of anorexia nervosa, bulimia nervosa and binge eating disorder were 0.9%, 1.5%, and 3.5%, respectively, for females and 0.3%, 0.5%, and 2.0%, respectively, for males.<sup>6</sup>

Michele L. Pettit is an assistant professor in the Department of Health Education and Health promotion at the University of Wisconsin-La Crosse, La Crosse, WI 54601; E-mail: michelebell32@hotmail.com. Sue C. Jacobs is an associate professor in the School of Applied Health and Educational Psychology, Oklahoma State University, Stillwater, OK 74078. Kyle S. Page is a doctoral student in the Department of Psychology, University of North Texas, Denton, TX 76203. Claudia V. Porras is a doctoral candidate in the School of Applied Health and Educational Psychology, Oklahoma State University, Stillwater, OK 74078.



While these prevalence rates are relatively low, researchers have speculated that much of disordered eating behavior is arguably underestimated.<sup>7</sup>

A recent study suggests that while both males and females suffer from eating disorders, their symptoms and perceptions of their bodies differ significantly. Ousley, Cordero and White<sup>8</sup> compared body images of male and female college students with bulimia nervosa/eating disorders not otherwise specified. They found that males expressed less concern about gaining weight or becoming fat than their female counterparts.

Gender disparities in the prevalence of eating disorder etiology are of particular interest to public health professionals involved in prevention efforts. Reasons for gender disparities in eating disorder etiology are unclear.<sup>9</sup> Moreover, the diagnostic criteria used to examine the prevalence of eating disorders by gender (i.e., anorexia nervosa, bulimia nervosa and eating disorders not otherwise specified) are potentially flawed.<sup>10</sup>

With the exception of a study conducted by Kucharska-Pietura, Nikolaou, Masiak and Treasure,<sup>11</sup> few studies have examined relationships between emotional intelligence and eating disorder symptoms. Kucharska-Pietura et al.<sup>11</sup> found that women with anorexia nervosa ( $n = 30$ ) were less likely to recognize negative facial emotions and emotions expressed vocally than a comparison group of healthy women ( $n = 30$ ). Even though they used ability-based measures for the construct of emotional intelligence (i.e., the Emotion Recognition Experiment,<sup>12</sup> Short Recognition Memory Test for Faces<sup>13</sup> and Voice Emotion Recognition Test<sup>14</sup>), the hypothesis that there may be relationships between emotional intelligence traits and eating disorder symptoms appears promising.

Peter Salovey and John Mayer,<sup>15</sup> psychologists with specialization in emotional intelligence, note that the concept encompasses multiple domains. Most notably, emotional intelligence involves self-awareness and management of an individual's emotions, self-motivation, acknowledgement of emotions in others and management of relationships.<sup>16</sup> According to Goleman,<sup>16</sup> emotional

intelligence encompasses attributes such as self-motivation, impulse control, delayed gratification, mood regulation, empathy and hope.

There is conceptual confusion in the literature surrounding the construct of emotional intelligence. Some researchers conceptualize emotional intelligence as an ability and measure it via performance-based tests that resemble IQ assessments. Other researchers conceptualize emotional intelligence from the standpoint of traits or dispositions and measure it via self-report instruments.<sup>17</sup> The vast majority of studies conducted on emotional intelligence have involved self-report instruments.<sup>18</sup> Based on a review of the literature, a self-report instrument was selected to measure perceived emotional intelligence factors among participants for this study. Specifically, the investigators were interested in measuring perceived emotional intelligence as conceptualized by factors of the Trait Meta-Mood Scale (TMMS) namely, attention, clarity and repair.<sup>19</sup>

Several studies, in addition to the Kucharska-Pietura et al.<sup>11</sup> study, have investigated the potential influence of perceived emotional intelligence on health. For example, low perceived emotional intelligence has been linked to a variety of adverse health outcomes including poor coping, alcohol-related issues and substance use issues.<sup>20</sup> Low perceived emotional intelligence also has been inversely associated with anxiety and depression, conditions commonly affiliated with eating disorders.<sup>21</sup>

Gender differences in emotional intelligence recently were reported in a study conducted by Van Rooy, Alonso and Viswesvaran.<sup>22</sup> Results from their study revealed that female undergraduates scored higher than male undergraduates on the Emotional Intelligence Scale (EIS; Schutte et al., 1998),<sup>23</sup> a self-report trait measure of emotional intelligence. However, the effect size, 0.21, was not significant and thus, the finding was relatively weak. Previous analyses of gender and emotional intelligence have yielded mixed results. In light of limited research on emotional intelligence and eating dis-

order symptoms and inconsistent findings on gender and emotional intelligence, our analysis primarily was explorative.

## PURPOSE

The purpose of this study was to assess relationships between perceived emotional intelligence factors and eating disorder symptoms among male and female college students. Research questions for this study were as follows: (1) Do relationships exist between perceived emotional intelligence factors and eating disorder symptoms among college students?, (2) Do gender differences exist in relation to eating disorder symptoms among college students?, and (3) Are perceived emotional intelligence factors and gender predictive of eating disorder symptoms among college students?

## METHODS

### Sample

This study was approved by the Institutional Review Board at a large Southern Plains university and was part of a larger investigation of perceived emotional intelligence, stress, coping and eating disorder symptoms among college students. The sample for this study was representative of the target population and consisted of 418 undergraduate students enrolled in courses at a large Southern Plains university. Fifteen participants were considered outliers and were excluded from data analyses because their ages were reflective of non-traditional students. The final sample size, excluding age outliers and participants who failed to complete greater than 20% of survey items, was 402. Descriptive analyses were conducted for all participants.

Participants ranged from 18 to 24 years of age. Greater than 90% of the sample were less than 24 years of age and 46% ( $n = 185$ ) were 18 or 19 years of age. Furthermore, over 40% ( $n = 167$ ) of participants were freshmen and greater than 80% ( $n = 341$ ) of the sample were white. Over half of participants were females ( $n = 222$ ) and 44.8% ( $n = 180$ ) were males. The sample was representative of the university from the standpoint of gender (51.01% male and 48.99% female)



and racial/ethnic (81.76% non-minority and 18.24% minority) distributions.

### Data Collection

A convenience sampling technique was employed to solicit participants for this study. Specifically, students enrolled in courses involved with an expanded undergraduate research pool were eligible for participation. The research pool involved students from various majors primarily enrolled in social sciences and education undergraduate courses. All participating students were at least 18 years of age. Instructors who registered their courses for involvement in the undergraduate research pool provided eligible participants an opportunity to select from an online list of potential studies in which to participate for course credit. If students chose to participate in this study after reviewing online recruitment scripts for studies on the list, they were directed to a web link that included an informed consent document indicating that their participation was voluntary and anonymous. Students who proceeded with the online survey, developed using Microsoft® FrontPage®, consented to participation. All participating students received course credit in the form of extra credit for involvement in the research. Instructors who registered their courses for inclusion in the undergraduate research pool were required to provide alternative ways for students to earn equivalent credit such as research papers, colloquia, cultural events, etc.

Data were collected over the course of approximately three months. Analyses included items from the Trait Meta-Mood Scale (TMMS)<sup>19</sup> and the Eating Attitudes Test (EAT-26).<sup>24</sup> The TMMS is a 48-item self-report instrument designed to measure characteristics of emotionally intelligent individuals. A shorter version, the 30-item TMMS, was used for data analyses. The 30-item TMMS was recommended by Salovey, Mayer, Goldman, Turvey and Palfai<sup>19</sup> because it was more efficient and yielded comparable interscale correlations and internal consistency reliability estimates. The shorter version of the scale consists of the same three factors as the longer version: at-

tention (i.e., "the degree to which individuals notice and think about their feelings," p. 128; 13 items), clarity (i.e., "the ability to understand one's mood," p. 128; 11 items), and repair (i.e., the capacity to "repair unpleasant moods or maintain pleasant ones," p. 129; 6 items).<sup>19</sup>

Salovey, Mayer, Goldman, Turvey and Palfai<sup>19</sup> demonstrated discriminant and convergent validity for the 48-item TMMS by correlating the TMMS subscales with a measure of depression (i.e., the Center for Epidemiological Studies Depression Scale; CES-D)<sup>25</sup> and measures of emotional evaluation/regulation based on various theoretical perspectives (e.g., the Negative Mood Regulation,<sup>26</sup> Life Orientation Test,<sup>27</sup> and Self-Consciousness Scale<sup>28</sup>).

Reliability for the 30-item TMMS was confirmed through internal consistency estimates (attention:  $\alpha = 0.86$ , clarity:  $\alpha = 0.88$ , and repair:  $\alpha = 0.82$ ).<sup>19</sup> Internal consistency reliability estimates for this study were as follows: (1) attention: 0.84, (2) clarity: 0.81, and (3) repair: 0.73.

The EAT-26 evolved from the EAT-40,<sup>29</sup> a diagnostic tool designed to identify individuals characterized by anorexia nervosa. The EAT-26 was developed to measure eating disorder symptoms, namely those indicative of anorexia nervosa and bulimia.<sup>24</sup> Garner, Olmsted, Bohr and Garfinkel<sup>24</sup> conducted a factor analysis to attain construct validity for the Eat-26. Three factors emerged from their analysis including dieting (i.e., "avoidance of fattening foods and a preoccupation with being thinner," p. 873; 13 items), bulimia/food preoccupation (i.e., "thoughts about food as well as those indicating bulimia," p. 873; 6 items), and oral control (i.e., "self-control of eating and the perceived pressure from others to gain weight," p. 873; 7 items).<sup>24</sup> Concurrent validity also was established for the EAT-26 by conducting correlations between items from the EAT-26 and the EAT-40. Reliability for the EAT-26 was deemed satisfactory,  $r = 0.98$ .<sup>24</sup> For this study, internal consistency reliability estimates for the EAT-26 subscales were as follows: (1) dieting: 0.92, (2) bulimia/food preoccupation: 0.86, and (3) oral control: 0.71. A total eating

attitudes score was calculated by summing dieting, bulimia/food preoccupation, and oral control scores, and was used to describe overall eating disorder symptoms among participants.

### Data Analysis

Data for this study were analyzed via the Statistical Package for the Social Sciences (SPSS) version 16.0. Descriptive statistics including frequencies and percentages were performed to describe the sample. Each item from the TMMS was measured via a Likert scale (5 = strongly agree, 4 = somewhat agree, 3 = neither agree nor disagree, 2 = somewhat disagree, and 1 = strongly disagree). Items indicative of emotionally unintelligent responses (e.g., "I don't think it's worth paying attention to your emotions or moods," p. 152)<sup>19</sup> were reverse coded. Total scores were generated for each factor of the TMMS including attention, clarity and repair. Higher scores corresponded to higher levels of emotional intelligence.

Responses to the EAT-26 also were formatted via Likert scales (always = 5, usually = 4, often = 3, sometimes = 2, rarely = 1, and never = 0). Total scores were calculated for each subscale of the EAT-26 including dieting, bulimia/food preoccupation and oral control.

Missing data from the TMMS and EAT-26 subscales were corrected. Specifically, records missing greater than 20% of responses for a given TMMS or EAT-26 subscale were discarded from analyses. For records with greater than or equal to 80% of responses for a given TMMS or EAT-26 subscale, the average value for responses was recorded for missing values. Approximately 10% ( $n = 40$ ) of surveys were incomplete, thus requiring average values.

Pearson correlation coefficients were performed to examine relationships between TMMS factors, EAT-26 factors and total eating attitudes. Independent *t*-tests were calculated to assess gender differences with respect to EAT-26 factors and total eating attitudes. Forward multiple regression analyses were conducted to evaluate the extent to which TMMS factors and gender explained EAT-26 factors and total eating attitudes. A



separate multiple regression analysis was calculated to explain each factor of the EAT-26 and total eating attitudes.

## RESULTS

An inverse relationship existed between clarity (i.e., TMMS factor involving the capacity to comprehend one's mood) and bulimia/food preoccupation (i.e., "thoughts about food as well as those indicating bulimia,"<sup>24(p. 873)</sup>  $r = -0.177$ ,  $P = 0.001$ ). An inverse relationship also was found between repair (i.e., TMMS factor involving the capacity to fix unfavorable moods or sustain favorable ones) and bulimia/food preoccupation ( $r = -0.151$ ,  $P = 0.004$ ). Results from Pearson correlation coefficients are presented in Table 1.

Independent *t*-tests revealed statistically significant differences between males and females with respect to dieting (i.e., "avoidance of fattening foods and a preoccupation with being thinner,"<sup>24(p. 873)</sup> bulimia/food preoccupation, oral control (i.e., "self-control of eating and the perceived pressure from others to gain weight"),<sup>24(p. 873)</sup> and total eating attitudes. Specifically, females reported higher mean scores than males on dieting ( $M = 28.80$  and  $M = 19.38$ , respectively; Cohen's  $d = -0.68$ ), bulimia/food preoccupation ( $M = 8.27$  and  $M = 4.56$ , respectively; Cohen's  $d = -0.66$ ), oral control ( $M = 9.92$  and  $M = 8.65$ , respectively; Cohen's  $d = -0.24$ ), and total eating attitudes ( $M = 46.99$  and  $M = 32.51$ , respectively; Cohen's  $d = -0.68$ ).

Multiple regression analyses were conducted to evaluate the extent to which attention, clarity, repair and gender explained dieting, bulimia/food preoccupation, oral control and total eating attitudes. Gender

was the only demographic included in multiple regression analyses because of its known contribution to eating disorder symptoms. The first regression model included attention, clarity, repair and gender as predictors of dieting. The second model included attention, clarity, repair and gender as predictors of bulimia/food preoccupation. The third model included attention, clarity, repair and gender as predictors of oral control. The fourth model included attention, clarity, repair and gender as predictors of total eating attitudes.

The linear combination of perceived emotional intelligence factors and gender was significantly related to dieting, bulimia/food preoccupation and total eating attitudes,  $F(4, 381) = 11.56$ ,  $P = 0.001$ ,  $F(4, 380) = 13.10$ ,  $P = 0.001$ , and  $F(4, 380) = 11.60$ ,  $P = 0.001$ , respectively. However, the linear combination of perceived emotional intelligence factors and gender was not significantly related to oral control,  $F(4, 381) = 1.85$ ,  $P = 0.119$ .

The sample multiple correlation coefficient for dieting was  $R = 0.33$ , indicating that approximately 11% ( $R^2 = 0.108$ ; Cohen's  $f^2 = 0.121$ ) of the variance of dieting in the sample could be explained by the linear combination of perceived emotional intelligence factors and gender. An analysis of the strength of individual predictors of dieting revealed that gender was the only significant predictor of dieting accounting for approximately 10% (zero-order correlation where  $r = 0.099$ ) of the variance (Table 2).

The sample multiple correlation coefficient for bulimia/food preoccupation was  $R = 0.35$ , indicating that approximately 12% ( $R^2 = 0.121$ ; Cohen's  $f^2 = 0.138$ ) of the

variance of bulimia/food preoccupation in the sample could be attributed to the linear combination of perceived emotional intelligence factors and gender. Gender was the most significant predictor of bulimia/food preoccupation and oral control accounting for approximately 9% (zero-order correlation where  $r = 0.091$ ) and 1% (zero-order correlation where  $r = 0.012$ ) of the variance, respectively. Clarity was a significant predictor of bulimia/food preoccupation, but accounted for only 2% (zero-order correlation where  $r = 0.020$ ) of the variance (Table 2).

The sample multiple correlation coefficient for total eating attitudes was  $R = 0.33$ , indicating that approximately 11% ( $R^2 = 0.109$ ; Cohen's  $f^2 = 0.122$ ) of the variance of total eating attitudes in the sample could be explained by the linear combination of perceived emotional intelligence factors and gender. Gender was the only significant predictor of total eating attitudes accounting for approximately 10% (zero-order correlation where  $r = 0.097$ ) of the variance (Table 2).

## DISCUSSION

There are several possible implications of results from this study. First, low levels of perceived emotional intelligence related to clarity (i.e., knowledge/understanding of one's emotions) significantly impacted bulimia and food preoccupation symptoms, namely persistent thoughts about food and binge eating/vomiting. The explanatory relationship between clarity and bulimia/food preoccupation indicated that mere cognizance of emotions or lack thereof potentially can determine whether or not selected individuals will develop symptoms of bulimia/food preoccupation. Moreover, the inverse relationship between clarity and bulimia/food preoccupation suggested that individuals who effectively comprehended moods potentially offset symptoms of bulimia/food preoccupation. Similarly, individuals who exercised repair by maintaining positive emotions and re-evaluating negative emotions potentially were protected from bulimia/food preoccupation.

The latter finding is perhaps the most salient for health educators. Maintenance

**Table 1. First Order Correlation Coefficients between TMMS Factors, Eat-26 Factors, and Total Eating Attitudes**

	Attention	Clarity	Repair
Dieting	0.099	-0.074	0.003
Bulimia/Food Preoccupation	0.067	-0.146**	-0.107*
Oral Control	-0.053	-0.050	-0.041
Total Eating Attitudes	0.071	-0.098	-0.036

\* $P < 0.05$ , \*\* $P < 0.01$

of healthy behaviors represents one of the underlying premises of health education strategies, interventions and programs that employ the Transtheoretical Model.<sup>30</sup> In light of the Transtheoretical Model and findings from this study, perhaps health education strategies, interventions and programs should promote maintenance of healthy emotions (i.e., repair) to minimize the occurrence of eating disorders and other potential health risks.

The concept of emotional eating is well-documented. Emotional eating occurs when individuals consume food for reasons other than hunger including anger, anxiety and depression. Several researchers have explored the underlying dynamics of emotional eating. For example, Bekker, Van de Meerendonk and Moller<sup>31</sup> discovered a linkage between negative affect and the onset of emotional eating. That said, results from this study suggested that individuals who were cognizant of their emotions and able to repair them were less likely to ruminate over food or binge eat/vomit and thereby, less inclined to experience emotional eating.

The binge-purge cycle associated with bulimia epitomizes the concept of emotional eating. In fact, the underlying determinants of bulimia (e.g., negative affect) mirror the accompanying consequences of the condition. A reoccurring theme in the literature suggests that the binge-purge cycle is accompanied by emotional fluctuation. Most notably, bulimics reportedly encounter negative moods prior and subsequent to binging. Conversely, bulimics purportedly experience a rush of positive emotions during and consequent to purging.<sup>32,33</sup> Findings from this study indicated that clarity and repair potentially can disrupt this maladaptive sequence of emotions.

Gender differences with respect to dieting and bulimia/food preoccupation were not surprising. Gender disparities related to anorexia nervosa and bulimia repeatedly have been documented in the literature. Reasons for this disparity are unclear, but "the female beauty ideal and gender role socialization" have been cited as possible risk factors (p. 185).<sup>34</sup>

Dependent Variables	$\beta$	t	P
<b>Model 1</b>			
Dieting			
Attention	0.055	0.960	0.338
Clarity	-0.097	-1.697	0.091
Repair	0.006	0.101	0.920
Gender	0.303	6.029	0.001**
<b>Model 2</b>			
Bulimia/Food Preoccupation			
Attention	0.089	1.554	0.121
Clarity	-0.124	-2.180	0.030*
Repair	-0.103	-1.724	0.086
Gender	0.287	5.758	0.001**
<b>Model 3</b>			
Oral Control			
Attention	-0.078	-1.293	0.197
Clarity	-0.019	-0.318	0.751
Repair	-0.002	-0.034	0.973
Gender	0.128	2.436	0.015*
<b>Model 4</b>			
Total Eating Attitudes			
Attention	0.042	0.727	0.468
Clarity	-0.101	-1.757	0.080
Repair	-0.023	-0.384	0.701
Gender	0.305	6.070	0.001**

\*P < 0.05, \*\*P < 0.01

Note: Males were coded as 1 and females were coded as 2 for multiple regression analyses.

Gender differences in oral control particularly were interesting. High levels of oral control, or self-control around food and recognition of pressure to eat/gain weight, potentially contribute to fewer bulimia symptoms.<sup>24</sup> According to Garner, Olmsted, Bohr and Garfinkel,<sup>24</sup> oral control items "acknowledge social forces in the environment and thus high scores may indicate social awareness or responsiveness, which have been found to reflect a good outcome" (p. 877). In this study, females reported higher levels of oral control than males. However, they also reported higher levels of dieting, bulimia/food preoccupation, and total eating attitudes, thus compromising the potentially positive aspects of oral control.

Additional research is needed to investigate factors that protect males from experi-

encing epidemic proportions of eating disorders. Kenardy, Butler, Carter and Moor<sup>35</sup> examined protective factors among males without eating disorders. Results from their study suggested that males enjoyed a decrease in negative emotions after consuming food, whereas females experienced changes in their emotional responses that were contingent upon their preceding moods.

As indicated by this study, gender appeared to be the most significant determinant of eating disorder symptoms among college students. While not surprising, given the explanatory nature of this study, perceived emotional intelligence played a minimal role in explaining eating disorder symptoms and is merely one of many potential determinants of eating disorders including genetics,<sup>34</sup> culture,<sup>34</sup> peers<sup>36</sup> and



other influences. That noted, future studies should investigate the extent to which emotional intelligence mediates the impact of known risk factors of eating disorder symptoms among males and females. Moreover, future research should examine relationships between perceived emotional intelligence and eating disorder symptoms through separate data analyses for males and females. Such analyses would provide greater insight regarding the influence of gender and the underlying nature of relationships between perceived emotional intelligence and eating disorder symptoms.

This study had several limitations. Many of the limitations fell within the realm of the sample. The sample size for this study resulted in small effect sizes for selected statistical analyses involving perceived emotional intelligence. A larger sample potentially could result in identification of significant relationships not detected in this study. As mentioned previously, a sample of convenience was solicited. As such, an unequal distribution of males and females completed the survey, and approximately two-fifths (40.4%) of the sample classified themselves as freshmen. While the sample was representative of the affiliated university, cultural diversity was limited in the pool of participants. As such, research involving a culturally diverse sample should be conducted. It should be noted that participants were susceptible to self-report bias and the limitations inherent in self-report instruments. Moreover, a notable percentage of participants (10%,  $n = 40$ ) submitted incomplete surveys and thus, required average values for selected responses.

Additional limitations of this study involved instrumentation. While the EAT-26 is characterized by favorable validity and reliability, it only assesses symptoms of selected eating disorders, namely anorexia nervosa and bulimia. A final limitation involved the potential influence of multicollinearity between TMMS factors included in multiple regression analyses. Future studies involving emotional intelligence should address this issue by measuring emotional intelligence as a single variable.

## TRANSLATION TO HEALTH EDUCATION PRACTICE

In essence, bulimia and other eating disorders represent maladaptive coping responses. That noted, health educators need to recognize the potential efficacy of incorporating emotional intelligence into gender-specific programs and interventions designed to address bulimia and related eating disorder symptoms. Elements of emotional intelligence, namely clarity and repair, have the capacity to be intertwined with theories and models that serve as the groundwork for health programming. To facilitate health programming, health educators should collaborate with professionals from disciplines grounded in emotional intelligence, namely counselors, psychologists, and other mental health professionals.

Based on results from this study, it seems fitting for bulimia interventions to incorporate educational strategies for cultivating emotional clarity and repair. Such educational interventions should focus on teaching individuals skills for understanding emotions and responding to them in ways that are health enhancing.

Primary prevention for bulimia/food preoccupation and related symptoms should occur before adolescence and needs to involve activities for building self-esteem, healthy body images, peer acceptance, and open, appropriate expression of emotions. Secondary and tertiary prevention efforts should focus on acknowledging negative emotions (attention), understanding the connection between emotions and disordered eating patterns (clarity), and evaluating existing coping strategies including disordered eating patterns, maintaining healthy coping strategies, and replacing disordered eating patterns with lifelong health habits such as moderate exercise, journal writing and other activities (repair). Kirkley, Battaglia, Earle and Gans<sup>37</sup> recommend exposing bulimics in a college setting to educational groups that address attitudes about food, nutrition information and misconceptions, healthy body images, weight management and coping. They portend that such educational groups should include peer repre-

sentation and supplement mental health counseling and other treatment regimens for bulimia.

In light of findings regarding oral control and gender, prevention of bulimia/food preoccupation also should encapsulate the influence of social/environmental factors on eating behaviors. Interestingly, females from this sample possessed a greater awareness of these influencing factors despite reporting higher levels of dieting and bulimia/food preoccupation than males. The extent to which gender expectations and perceptions impact eating behaviors should also be included in prevention efforts.

In summary, health educators have a professional responsibility to assist counselors and other mental health professionals with preventing bulimia/food preoccupation and related eating disorder symptoms among college populations. Health educators can fulfill their professional responsibilities by developing and delivering educational strategies that promote healthy responses to emotions and healthy relationships with food.

## REFERENCES

- Wade TD, Wilkinson J, Ben-Tovim D. The genetic epidemiology of body attitudes, the attitudinal component of body image in women. *Psychol Med*. 2003;33(8):1395-1405.
- Tylka T, Subich L. Examining a multidimensional model of eating disorder symptomatology among college women. *J Couns Psychol*. 2004;51(3):314-328.
- Stice E, Schupak-Neuberg E, Shaw HE, Stein RI. Relation of media exposure to eating disorder symptomatology: an examination of mediating mechanisms. *J Abnorm Psychol*. 1994;103(4):836-840.
- Levitt D. Drive for thinness and fear of fat among college women: implications for practice and assessment. *J Coll Couns*. 2004;7(2):109-117.
- Kitsantas A, Gilligan T, Kamata A. College women with eating disorders: self-regulation, life satisfaction, and positive/negative affect. *J Psychol*. 2003;137(4):381-395.
- Hudson JI, Hiripi E, Pope HG Jr, Kessler RC. The prevalence and correlates of eating



disorders in the National Comorbidity Survey Replication. *Biol Psychiatry*. 2007;61:348-358.

7. Parham ES, Lennon J, Kolosi M. Do all college students have eating disorders? *Healthy Weight J*. 2001;15(3):366-371.

8. Ousley L, Cordero ED, White S. Eating disorders and body image of undergraduate men. *J Am Coll Health*. 2008;56(6):617-621.

9. Striegel-Moore RH, Cachelin FM. Etiology of eating disorders in women. *Couns Psychol*. 2001;29(5):635-661.

10. Thomas JJ, Vartanian LR, Brownell KD. The relationship between eating disorder not otherwise specified (EDNOS) and officially recognized eating disorders: meta-analysis and implications for DSM. *Psychol Bull*. 2009;135(3):407-433.

11. Kucharska-Pietura K, Nikolaou V, Masiak M, Treasure J. The recognition of emotion in the faces and voice of anorexia nervosa. *Int J Eat Disord*. 2003;35(1):42-47.

12. Izard C. *The Face of Emotion*. New York: Appleton-Century-Crofts;1971.

13. Warrington EK. *The Camden Memory Tests Manual*. East Sussex: Psychology Press;1996.

14. Ekman P, Friesen WV. Measuring facial movement. *J Environ Psychol Nonverbal Behav*. 1976;1:56-75.

15. Salovey P, Mayer JD. Emotional intelligence. *Imagin, Cogn, Pers*. 1990;9:185-211.

16. Goleman D. *Emotional Intelligence: Why It Can Matter More Than IQ*. New York, NY: Bantam Dell;1995.

17. Goldenberg I, Matheson K, Mantler J. The assessment of emotional intelligence: a comparison of performance-based and self-report methodologies. *J Pers Assess*. 2006;86(1):33-45.

18. MacCann C, Matthews G, Zeidner M, Roberts RD. Psychological assessment of emotional intelligence: a review of self-report and performance-based testing. *Int J Organ Anal*. 2003;11(3):247-274.

19. Salovey P, Mayer JD, Goldman SL, Turvey C, Palfai TP. Emotional attention, clarity, and repair: exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), *Emotion, Disclosure, and Health* (pp. 125-154). Washington, D.C.: American Psychological Association;1995.

20. Riley H, Schutte NS. Low emotional intelligence as a predictor of substance use problems. *J Drug Educ*. 2003;33(4):391-398.

21. Fernandez-Berrocal P, Alcaide R, Extremera N, Pizarro D. The role of emotional intelligence in anxiety and depression among adolescents. *Individ Diff Res*. 2006;4(1):16-27.

22. Van Rooy DL, Alonso A, Viswesvaran C. Group differences in emotional intelligence scores: theoretical and practical implications. *Pers Individ Diff*. 2005;38(3):689-700.

23. Schutte NS, Malouff JM, Hall LE, Haggerty DJ, Cooper JT, Golden CJ, et al. Development and validation of a measure of emotional intelligence. *Pers Individ Diff*. 1998;25(2):167-177.

24. Garner DM, Olmsted MP, Bohr Y, Garfinkel PE. The Eating Attitudes Test: psychometric features and clinical correlates. *Psychol Med*. 1982;12:871-878.

25. Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. *Appl Psychol Meas*. 1977;1:385-401.

26. Catanzaro SJ, Mearns J. Measuring generalized expectancies for negative mood regulation: initial scale development and implications. *J Pers Assess*. 1990;54:546-563.

27. Scheier MF, Carver CS. Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health Psychol*. 1985;4:219-247.

28. Fenigstein A, Scheier MF, Buss AH. Public and private self-consciousness: assessment and theory. *J Consult Clin Psychol*. 1975;43:522-527.

29. Garner DM, Garfinkel PE. The Eating Attitudes Test: an index of the symptoms of anorexia nervosa. *Psychol Med*. 1979;9:273-279.

30. Glanz K, Rimer BK, Viswanath K. *Health Behavior and Health Education: Theory, Research, and Practice*, 4th ed. San Francisco, CA: Jossey-Bass;2008.

31. Bekker MHJ, Van de Meerendonk C, Mollerus J. Effects of negative mood induction and impulsivity on self-perceived emotional eating. *Int J Eat Disord*. 2004;36(4):461-469.

32. Lingswiller VM, Crowther JH, Stephens MA. Affective and cognitive antecedents to eating episodes in bulimia and binge eating. *Int J Eat Disord*. 1989;8(5):533-539.

33. Mizes JS, Arbitell MR. Bulimics' perceptions of emotional responding during binge-purge episodes. *Psychol Rep*. 1991;69(2):527-532.

34. Striegel-Moore RH, Bulik CM. Risk factors for eating disorders. *Am Psychol*. 2007;62(3):181-198.

35. Kenardy J, Butler A, Carter C, Moor S. Eating, mood, and gender in a noneating disorder population. *Eat Behav*. 2003;4(2):149-158.

36. Zalta A, Keel P. Peer influence on bulimic symptoms in college students. *J Abnorm Psychol*. 2006;115(1):185-189.

37. Kirkley BG, Battaglia L, Earle L, Gans K. Health education as a component of campus bulimia treatment programs. *J Am Coll Health*. 1988;37(1):40-43.